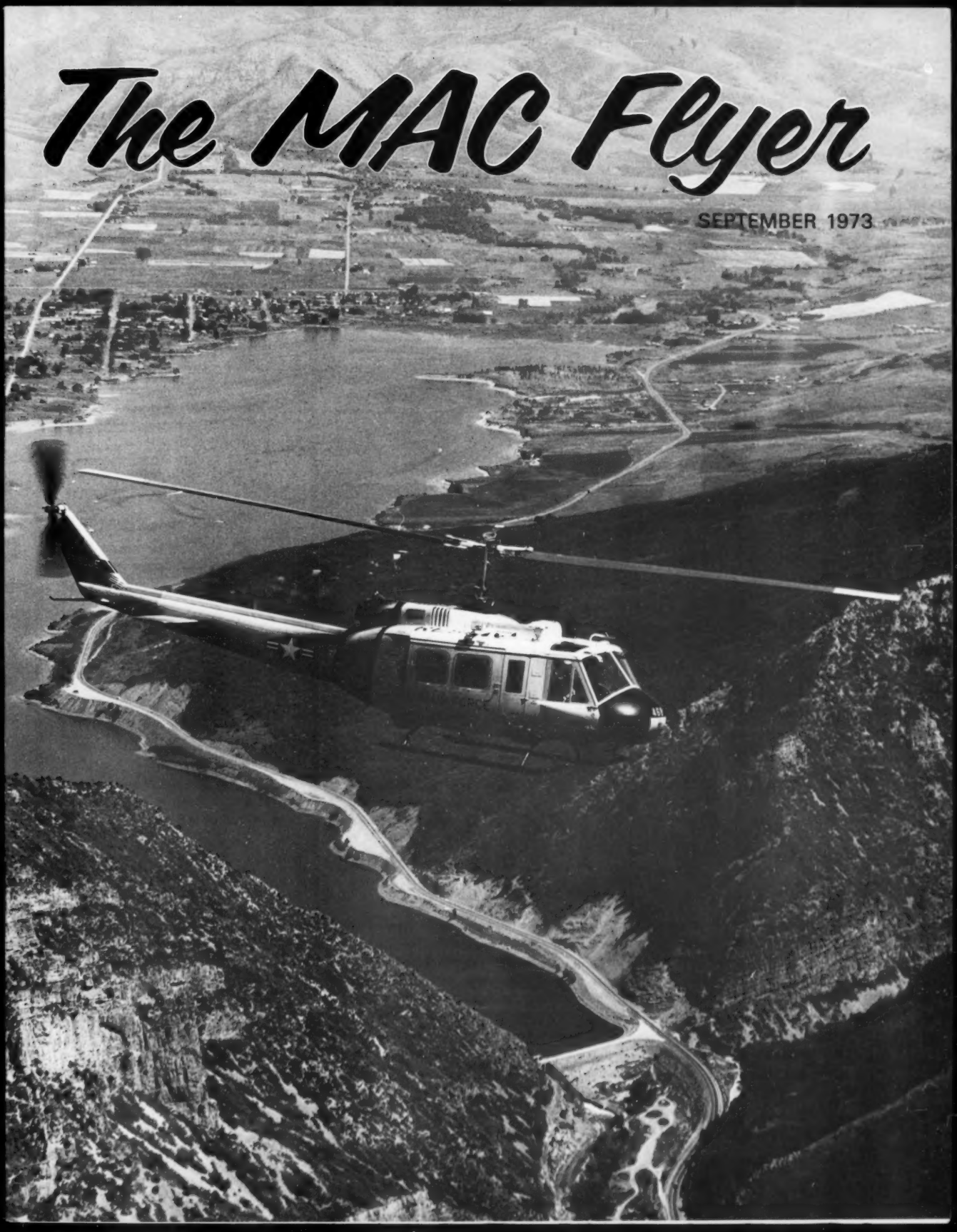
The MAC Flyer

SEPTEMBER 1973



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For Greater Efficiency
in MAC Air Operations

The MAC Flyer

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COVER: The HH-1H (Huey) is the newest piece of hardware in the Aerospace Rescue and Recovery Service inventory.

The MAC Flyer is published by the Safety Division, HQ MAC. The contents are informative and not regulatory or directive. All names in accident stories are fictitious and no information concerning aircraft accidents may be construed as incriminating under Article 31, UCMJ.
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Squawk Box

Most of you just don't have time to sit down and read all the interesting magazines on today's market. So you probably will carefully select the most appealing and informative publications. This accounts for the highly competitive nature of the magazine business.

While THE MAC FLYER is distributed without charge to MAC crewmembers, it is vying with the commercial magazines for your readership. And where our competitors measure their success in terms of total sales, we measure ours by more efficient and safer air operations. The magnitude of this success is dependent upon the knowledge and awareness that you, the aircrews, derive from reading our publication. This is precisely why letters from you, whether complaining or complimenting, provide guidance as to what type of articles are printed.

Readers sometimes complain that the magazine is too aircrew oriented. But the fact is THE MAC FLYER is primarily aimed at Military Airlift Command air operations. However, it sometimes features articles directly relating to flight support functions like maintenance, air traffic control, and life support.

If you have a good story to tell relating to flying, the editors will go to great lengths to publish it. Stories about MAC line units are by far the most widely read (with the exception of C. R. Terror!) and are in great demand.

So, if you have contributions, criticisms, or even compliments, take the time to tell the editors. It's your magazine.

Wild eyed with enthusiasm, unrelentingly curious and eager to meet any challenge...

Here Come the Funny New Guys

by Maj Dennis W. Stiles
67 ARRS, RAF Woodbridge, U.K.

The Funny New Guys (FNGs) bounced across potholes in the new parking lot at Somestroke AFB, home of the 9999th Strategic Multipurpose Utility Support Squadron (SMUSS). Their hands lay folded on new briefcases in their laps. Two contrails crept north in a blue sky, and their heads followed in unison, like the dance chorus in a 1942 movie about religious retreats. They sat straight, proud to be riding in the six-cylinder, blue Air Force bus with synchromesh transmission, side mirrors, and seating capacity of 48.

Inside the 9999th Strategic Multipurpose Utility Support Squadron Operations Building (SMUSSOB), which had an electric buzzer on the door, the IPs sat in a circle in the briefing room. One IP wrote, "Gloom," on his notepad. Another IP wrote, "Snails." There was a map of Madagascar on the wall. Above the door a sign said, "Exit."

The oldest FE stood up and gave a speech. "I am the oldest FE," he said. "I know my circuit breakers. I have flown the VC-47. I once shot a radio range approach in haze. We can't trust these FNGs. FNGs may do anything. An FNG at Simpleflop Field buzzed the IG Team on the ninth hole on the last day of their inspection. An FNG at this base used obscene language to the Wing Commander's secretary in 1964. Here's the point. Experience tells."

An IP stood up and said, "I agree." He wrote, "EXPERIENCE," on the blackboard. "The FNGs will make mistakes. They won't have the route from Eidlewilde to

Canaveral memorized. The cockpit will be cluttered with maps. Here's another thing. They like to fly in unusual circumstances, even at night."

There was a general groan.

In his office the squadron commander sucked on an Alka Seltzer tablet.

In another room the safety weenie underlined yesterday's prevailing visibility with a green marking pen and initialed a poster. He was glad the FNGs were coming. "Fresh air over old furniture," he said to himself, and made a note.

Suddenly the buzzer buzzed at the ops building door; it unlatched, and the FNGs marched in. A breeze behind them streaked the dust in the hall. They kept their chins in and held tight to their briefcases, looking worried.

The DO was expecting them. He shook hands with the tallest FNG and said, "Welcome to Somestroke." The FNG saluted. The DO saluted. The rest of the eleven FNGs saluted. The DO saluted.

"You don't have to salute indoors," he said, and looked at his shoes.

They all walked together to the briefing room. In the hall were pictures of the chain of command. The bald ones had their hats on.

In the briefing room the IPs looked at the FNGs and the FNGs looked at the IPs.

"They have mean, hairy faces," the FNGs thought.

"They have too much hair," the IPs thought.

The DO gave the briefing. "Welcome to Somestroke," he said again. "The mission of the 9999th is to support multipurpose utility on a strategic scale. We have 43 officers, 211 enlisted men, and a WAF." He cleared his throat. "We have 14 new Lockjaw CCCQ Moonmoose aircraft with JJJJJ-11-619Y1Y-14966 engines and electroflexic subsystems. Three of them are in commission. The barber is next to the Post Office. Don't buy a motorcycle. Do you have any questions?"

There weren't any questions.

The DO introduced the flight surgeon, who gave a lecture on the topic, "Don't Pick Your Nose on Final Approach." The FNGs took notes. "The flu shot doesn't really hurt," he concluded, and hurried off to play paddleball.

The safety guy spoke next. He was enthusiastic. "Don't get caught between a rock and a hard place," he said. "Remember fresh air over old furniture." He showed them the poster with his initials on it.

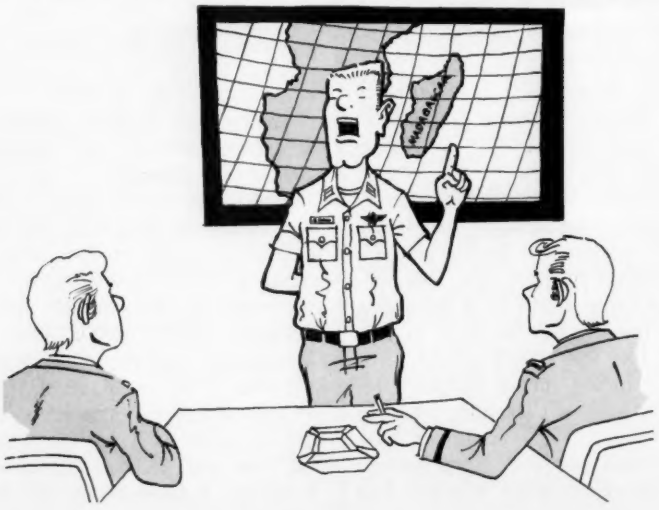
Then the manuals custodian came in with two wheelbarrows. He issued 12 manuals, 52 supplements, 412 changes, a small plastic binder, and a sharp pencil to each FNG. He was very conscientious.

"Now," the DO said, "We'll look at the Flight Planning Room."

On the way down the hall, the safety weenie pointed out the fire extinguishers. They were three feet tall. Over each fire extinguisher was a three-foot sign in red which said, "Fire Extinguisher." The signs were unframed.

In the flight planning room there was another sign which said, "Be Neat." It had an orange juice stain on the corner.

The DO showed the FNGs the forms for the flight orders, the



flight plan forms, weather briefing forms, the passenger manifest, the maintenance review, the customs forms, the FCIF file, and an old Penthouse.

"Wow," said the oldest FE. The FNGs yawned.

Then the DO explained the message system for reporting aircraft movement. "These are the movement reporting forms for reporting movements. This is the form for departing. This is the form for arriving. This is the form for not departing. This is the form for not arriving. This is the form for doing something else. You may be confused because they're all the same color. Are there any questions?"

"Yes sir," said the tallest FNG. "When can we fly?"

"Just a minute," the DO said. "First the scheduler will explain the schedule."

The scheduler came in with two telephones in one hand, six clipboards in the other, and a dart between his teeth. "Here's how the schedule works," he said. "Some of you will be on hard crews. Some of you will be on soft crews. Some of you will be in the pool. The pool will circulate through the hard crews and soft crews on odd and even days. We have firm scheduling. Check the monthly schedule on the first day of the month. Check the weekly schedule on the first day of the week. Call in at 5:00 o'clock every afternoon. Jump on an airplane whenever you can. Are there any questions?"

"Yes, sir," said an FNG. "When can we fly?"

"Just a minute," the DO said. "First we have to go to flight records."

On the way to flight records he stopped in his office to show them his wall charts. "The 9999th has the finest wall charts in the Air Force," he said. "I want to show you something." He pointed and they all looked at a wall chart. "The blue line is the Air Force standard. The green line is the MAC standard. The orange line is the wing standard. The pink line is the group standard. The black line is the squadron performance record. It pays to work at the top."

At flight records an NCO with a Phi Beta Kappa key on his necktie explained, "The 781 is now computerized and simple. You can log day VFR FP and simulated instrument FP time at the same time. The nav can log night time, VFR only. Others can't. If the columns have a three-number interval on top, use three digits. A co-pilot can't log an approach under co-pilot time. Draw a line through your zeros. Are there any questions?"

"Yes, sir," an FNG said. "How long does it take to upgrade to IP?"

"Don't be impatient," the DO said. He checked his coffee cup. "You can report to aircraft Triple Ten now."

Fourteen Lockjaw CQ Moonmoose aircraft gleamed along the ramp. Their wings had an aggressive droop. The FNGs lined up outside the door and tried to keep the toes of their shoes in each other's shadows.

Two IPs sauntered out. The FNGs admired their red eyes and thick wristwatches. They all climbed aboard the Moonmoose while the maintenance officer, the line chief, the crew chief and 14 assorted specialists chewed the erasers off a box of red pencils. In the distance the safety guy rode up and down the taxiway looking for candy bar wrappers. His beacon flashed smartly.

Seated inside the aircraft, the IPs observed how alertly and smoothly the first FNG adjusted his rudder pedals. They made notes, and the ten other FNGs stood on their toes to see.

Then the FNG in the seat asked, "What's this?" and pointed to a yellow light six inches behind his left ear.

"That's the flexlocking cable-stretch indicator," said the IP, with some authority.

"Why is it lit?" asked the FNG.

"Because the parking brake is set," replied the IP.

"How does it connect?" asked the FNG. All the other FNGs gathered around and looked interested.

"With a rubber-tipped cable flange," said the IP with slightly less authority, "which draws indicator power from the upper intermediate back-up essential DC bus."

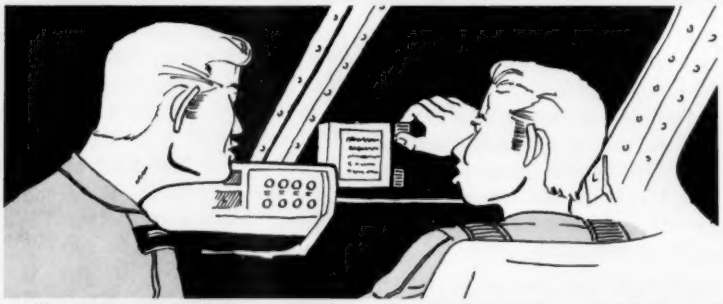
"That's the circuit breaker," he added, pointing to a circuit breaker as he opened his box lunch.

"Oh," said the FNG. "What happens if you lose upper intermediate back-up essential DC power and have the parking brake set in flight?"

Honorable Mention — 1973 Writing Contest

"Starting Engines Checklist," said the IP.

On downwind, when the IP checked the hydraulic pressures and brakes he said, "Hydraulic pressures and brakes—Checked."



"Isn't that 'Hydraulic pressures and brakes—Checked and NORMAL?'" asked the FNG, who knew what he knew.

"Mmmm," said the IP.

Meanwhile, an FNG from the back of the aircraft came up to point out that in posting Manual 2-2-2-CCC(Tf)-X he had found that paragraph 3 of supplement 10 seemed to contradict paragraph 10 of supplement 3, and that the word "immediate" was spelled with one "m."

"Mmmm" said the IP.

On final the FNG in the seat said, "I want to land with 80 percent flaps."

"You can't," said the IP.

"Why not?" asked the FNG.

"We don't do that," said the IP.

"Where is it written down?" asked the FNG, as he smoothly slowed to five knots above stall speed.

"Go around," said the IP.

In the course of the day the eleven FNGs made 29 landings left of centerline, 36 landings right of centerline, turned the wrong way in six holding patterns, shot one ASR to PAR minimums, asked 2,833 questions, planned six parties and a rockfest, and plugged up the urinal drain.

The IPs were exhausted. They called an early emergency meeting for the next morning. Then they called their wives to cancel bridge. The wives asked if the FNGs were cute.

At the meeting one IP said, "We can't let them go too far," and another IP said, "We haven't pushed them far enough.

The DO agreed.

The safety weenie, who was also a mystic, said, "Gold is the color of experience. Blue is the color of energy. Too much gold is dull. Too much blue is painful. Think of music. Gold is the staff. The notes are blue. The staff alone is silent. The notes alone are chaos. A strong staff and lively notes make a melody."

The IPs threw their shoes at him.

* * *

Later the FNGs came to work. One of them had a new sign for the flight planning room. It said, "Be neat," without an orange juice stain. Another FNG put up a map of Oklahoma next to the map of Madagascar in the briefing room. Two brought brooms and swept the dust out of the hall. One brought yellow bathroom tissue which was extra soft. They all had posted the 52 supplements and 412 changes to their manuals. Their shoes shone like wet bing cherries.

The FNGs ran out of questions on the same day the IPs remembered everything they had forgotten. They wore a groove by landing 5,719 straight times in the middle of the runway. The 9999th Strategic Multipurpose Utility Support Squadron won the prestigious Most Outstanding Utility Support Effectiveness (MOUSE) Award. The IPs came to the rockfest and played bridge in the bathroom. The safety weenie brought the posters.

ABOUT THE AUTHOR

Maj Stiles is a past winner in the annual Flying Safety Writing Contest and is a frequent contributor to THE MAC FLYER. A C-130 pilot with the 67 ARRS at RAF Woodbridge, U.K., he is a graduate of the USAF Academy and holds a Masters Degree in International Economics. He flew Jolly Greens at Udorn AB, Thailand, and prior to his present assignment was with the 1042d Test Sq (HQ COMD USAF) at Dover AFB, DE.

The checklist is a crewmember's insurance against himself. Without it the possibility of human error multiplies.

Don't save it until tomorrow

by Maj Grover C. Tate, Jr.
USAF (Ret)

The theatre was filled with people and the overpowering music of the movie's sound track. The feature picture was in progress. It was a colorful film named "Checklist" and it was being shown as a part of the monthly base Flying Safety Program.

The cast was made up of Air Force people in their native habitat. It showed them as they went about the business of their normal duties. The theme of the picture was deadly serious, but the mood was light and gay.

For a plot, a truck bearing a sign that read "Show Us Your Checklist" drove about the base and as it passed various people its loudspeaker blared "Show us your checklist." In most cases

Don't save it until tomorrow

the pedestrians would proudly hold their checklists aloft.

As the truck drove alongside a taxiing fighter, the fighter pilot embarrassedly pointed to his checklist — precariously balanced on the tip of the wing where he had left it during preflight.

In a tandem trainer, the pilot searched vainly for his checklist and was very relieved to look back and see his back seat companion holding it up for all to see — in apparent ecstatic triumph.

A transport type, loaded with briefcase, B-4 and clothes bag, was accosted as he trudged across the ramp with his burden. He couldn't find his checklist so the truck left him to his woe — but not for long. They returned to him later to find him frantically digging in the B-4 bag trying to locate the elusive checklist. Time after time the camera returned to this unfortunate character, in absolute frustration, for he couldn't find the little blue book. His clothing was strewn all over the ramp, his briefcase was a shambles, and he still searched with no success.

Then the action switched to nonflying types. A motorcyclist held his checklist up high for all to see — and then with a grin on his face, promptly ran into a telephone pole.

A trash collector pulled his checklist from a trash can. And so it went, everyone had a checklist and they were using them. There were truck drivers, milkmen and hunters. Even the hunting dog had his checklist. Everyone, that is, except the transport type, and ultimately even he found his — tucked firmly into the waistband of his thermal underwear.

As a finale, we saw the back view of a pilot (we knew he was a pilot because he was wearing a flying suit and had an attractive girl on his arm) entering a motel room. The pilot clutched the girl in one arm and an ominous-looking bottle in the other. The music rose to a crescendo as the pilot and his girl (and bottle) entered the motel room and the door closed behind them. After a short pause the door opened slightly and a hand poked out to display — (you guessed it) — a checklist. Then the door closed and remained closed.

Then the picture ended. It was a success, both entertaining and informative.

* * *

Scarcely a block away from the theater another group of men was assembled, but this group was grim and serious. Silently each of them signed the last sheet of a document that was thick with pages of print and photographs. The document contained the minute details of an accident, the step-by-step account of the events that ended with destruction and with death. It contained the statements of witnesses, investigation officers, maintenance people, tower operators, and the hordes of other people involved. Photographs included the debris that remained of a once magnificent transport aircraft, along with macabre photos of the remains of the crew. Autopsies and records of each of the crewmembers were silent evidence that these men once existed and were proud members of the Air Force. The document represented the end of many days of exhaustive investigation. It concluded with a most likely cause of the accident and recommendations for preventing recurrence.

As the last of the signatures was affixed to the document, a major, returning from the flying safety meeting, entered the room.

A colonel, gray of hair, and chest emblazoned with the bright ribbons of many campaigns, asked, "How was the meeting?"

"Very well done, sir, a fine meeting," the major answered.

"What was the subject?" the colonel inquired.

"It was all about the importance and the use of checklists," explained the major.

The colonel with the gray hair looked at the document he had just signed. Words, big and black, seemed to leap from the printed page as he read:

CAUSE OF ACCIDENT: FAILURE OF CREW TO FOLLOW CHECKLIST PROCEDURES.

"Too bad, too late," he whispered.

"What did you say, sir?" the major asked.

"Your meeting, major, it was too late, just ten days too late," the colonel answered, and he gently closed the cover of the document.

Towering peaks and soaring temperatures challenge even the most experienced chopper jocks and can spell DISASTER for the unwary.

Hot and High Could Leave You High and Dry

by Lt Col Ted L. Smith
1551 FTS, Hill AFB, UT

To a welded-wing jock "hot and high" means a fast touchdown speed and a longer than planned landing roll. But for the fling-wing pilot "hot and high" means high ambient temperatures and mountainous terrain. What follows is a discussion of some of the pitfalls of chopper operation in a hot climate and at high altitude. Several examples of past and present experiences highlight the hazards that we must constantly be aware of and these examples point out that it doesn't have to be July on Mount Whitney, for these problems to occur.

Short on Power

Here's what happened one Indian summer day late in 1964 at Stead AFB, then the Air Force helicopter training school. The school, located in a mountainous area, was a good place to train helicopter pilots because of its high altitude training sites. Students learned to fly the H-19, H-21, and H-43 with minimum power reserves; in fact, during the summer months conditions were so critical that gross weights often had to be reduced by down-loading fuel. By Autumn the prevailing cooler temperatures allowed fuel loads to be returned to a standard training configuration.

However, this day was unusually warm. The temperature was about 90°F, density altitude around 12,000 feet, with light and variable winds. The performance charts indicated the power margin

was extremely close but within limits. A wind check at the intended landing spot indicated a light breeze from up-slope. The student ran a power check up-slope at 50 feet and 20 knots to see if he had enough power for landing. His check determined the power was not adequate so he initiated a go-around. Without warning the wind had shifted 180° to a tailwind condition. Power was at maximum and the departure route was uphill. The student, fearing the helicopter would not clear the trees, instinctively pulled in more collective. The only reaction from the helicopter was a loss of rotor rpm. The IP attempted to recover the decaying rpm but it was too late. The helicopter entered the trees at the far end of the landing spot.

Years Later

The time and place has changed but the hot temperatures and high altitude conditions still remain at our new Air Force helicopter school. However, helicopters are now much more sophisticated. Jet power has replaced the old piston engines and most of the school's choppers are powered by twin gas turbines. But let's stop a second and look at a present day example. The flight was a student training mission and the IP was demonstrating a takeoff from a site a little over 7,000 feet elevation. The temperature — a warm spring morning. After clearing the trees and a ridge line, the helicopter started a right turn. The IP applied full left rudder but the aircraft continued turning right. The IP spotted a small clearing and crash landed the aircraft. Investigators found no mechanical failure and the board established that a loss of rotor rpm caused the tail rotor speed to decrease to the point that its effectiveness would not maintain directional control.

These two mishaps are only representative of the many helicopter accidents that have occurred over the years due to operations where high density altitude and high temperatures have made power reserves marginal. Many ops managers and pilots thought jet powered helicopters would decrease the danger. But in many cases the increased power has been offset by adding more and more auxiliary equipment, making the power reserve still marginal. Today's helicopters have not eliminated the problems of high altitude operations. Therefore, a special awareness of the hazards involved when operating helicopters in this environment is as important for aircrews and supervisors today as in the H-19, H-21, and H-5 era.

Urgency vs. Capability

Hazard Factors

The dangers of hot, high altitude operations are not peculiar to rotary wing aircraft; they affect fixed wing aircraft as well. But helicopters, because of their mission, are more vulnerable to these hazards. While fixed wing aircraft usually operate from a runway with a known length and field condition, the helicopter is frequently required to operate into remote sites where the size and obstruction height must be estimated. A chopper's mission often requires a crew to land in confined spaces, on mountain ridges and on mountain slopes with updrafts and downdrafts. The expected power margin can be wiped out by a sudden change in wind direction or an unexpected downdraft. Although the techniques used in high and low altitude operations are the same, they must be more exacting at higher density altitudes. The mistakes that are made at low altitudes are often forgiven where the same mistakes at high altitude can be fatal.

To safely operate helicopters in these conditions, several things must be considered. We have had several mishaps in the past where commanders and operations officers didn't ensure that the helicopter had the capability to perform the mission before it was launched. When aircraft performance is marginal, a critical evaluation of the degree of urgency and the risks involved must be made before launching the mission. The aircrews must be experienced enough to make an on-scene determination of the aircraft's performance compared against landing conditions. They must also have

the judgment necessary to abort the mission if it is beyond the capability of the aircraft. Here are some of the factors you should be aware of when operating in these marginal high altitude situations:

1. Power Available Versus Power Required. This is especially troublesome when operating into an area of much higher altitude than the base departed. Mission performance computations must be figured against existing and forecast ambient conditions prior to takeoff. The power available should also be compared against the power required for both in and out of ground effect conditions to ensure that a safe power margin exists. However, significant variations can exist between forecast and actual remote area weather conditions and since valid performance information is a function of accurate ambient data, the figures used in predeparture computations must be verified. Such variations could seriously degrade or even negate safe helicopter performance. Do your crew and yourself a favor. Take the time to perform a thorough site reconnaissance, noting any temperature and pressure altitude deviations. Compute a density altitude, and update power requirement data. Perform the Dash One power available check at the intended landing site and, finally, note the margin between power required and actual power available. Now, it's up to you, the pilot, to decide if this power margin is sufficient for safe operation. Procedures concerning power margins vary from bird to bird and must be adhered to, particularly when hot and high conditions exist.

Margin for error decreases at altitude.

2. Power Settling. This is caused by the helicopter sinking into its own displaced air mass when its downwash starts circulating up and through the outer rim of the rotor disc. While it is possible to enter the condition at lower altitudes, it is usually encountered at high altitudes, high temperatures, and high gross weights. If this condition is entered near the ground, there may not be sufficient altitude to recover. A high rate of descent coupled with a tail wind approach can get you into power settling.

3. Low Rotor RPM. In helicopters powered by piston engines this could occur by improper throttle control. With a jet powered helicopter, the fuel control automatically controls the rotor rpm. However, loss of rotor rpm can still occur if a pilot attempts to pull more power than the engine is capable of producing. As additional collective is pulled, more pitch is placed on the blades which causes the rpm to decrease. If this is not detected and corrected, the rotor rpm will continue to decay until lift is lost to the point where it will no longer support the aircraft. As the main rotor speed decreases, so does the tail rotor speed. Eventually the tail rotor will no longer provide the thrust necessary to maintain directional control. A low rotor rpm at high altitudes will also cause sloppiness in the aircraft controls and make control of the aircraft difficult.

4. Blade Stall. With older helicopters this was a critical condition. It is basically caused by a high forward speed causing the retreating blade to stall out. At higher altitudes and temperatures, blade stall onset will occur at lower indicated airspeeds. In some helicopters, this condition can throw the aircraft completely out of control. In others the roughness gives adequate warning of a full blade stall so corrective action can be taken. However, flying in this condition increases stresses on the helicopter and decreases component life. At high altitudes, turbulence around mountains and close to roll clouds, etc., also can drastically decrease the blade stall speed.

In conclusion, it must be stressed that rotary wing aircraft can be safely flown at high altitudes and high temperatures. It only takes an awareness of the problems that may be encountered and the know-how to cope with them. Thinking ahead should be a part of all flying but in helicopters at high altitudes it is a must.

The end of a good TDY, a sick bird, and the old ball peen hammer trick are perfect ingredients for...

A Fireworks Spectacular on the Leghorn Ramp

by Maj Richard D. Hoover
1552 FTS, Hill AFB, UT

I was thinking how great the six days at Clark had been as I strapped into the Herky's right seat for the trip back to Cam Rahn and our very own hootch.

Imagine that. Clark is great. Greater than Guam, by order of the Base Commander. Greater than — oh, well. Time to forget about the "Oasis" and the downstairs nightclub and pool and . . .

"Before starting engines checklist" interrupted Jeff, my young lieutenant copilot, serving notice that it was time to get down to business again. His turn in the left seat. He smiled, sensing this aurora of nostalgia I sometimes get after a good TDY. I grinned back.

We reached the Starting Engines Checklist and Jeff pressed number one starter button.

"Negative rotation," replied the ground controller. There was a light in the start button, but the holding circuit was out. Of all the rotten luck.

"Reckon we might not make it after all," forecast Smitty, our veteran flight engineer. The loadmaster simply swore, foreseeing one more unscheduled baggage drill. I looked back at Tony, the navigator, and he just smiled. I could read his mind: "Ann Margaret show at the club tonight."

After a bleed air check, Smitty confirmed that the starter control valve was acting up. But the crew chief said it should be ready to go in forty minutes or so. I doubted it, so back to the snack bar we went. This time without bags. We hoped for the best.

"They'll probably give it a couple of raps with a ball peen," drawled Smitty in his matter-of-fact tone. You never knew by his voice just how much importance this guy attached to anything. But he was a fantastic flight engineer. Years of experience on the C-130.

* * *

A young airman popped his head through the snack bar door, "Your bird's ready," he an-

nounced, then backed out again, not waiting for a reply.

That was quick, I thought. At last, here we go.

Our plane had been towed to the Leghorn area while we were in the snack bar so we caught a ride in the bread truck. It was hot and I renewed my thoughts of the night before. Except for the social life, there wasn't much excitement of any kind on this trip. Not even an in-flight emergency. Ha, ha!

The truck jerked to a stop and shortly I found myself strapping in the seat once again. Everyone was hoping this wouldn't be just another dress rehearsal. Either be good and broke or good and fixed, big bird. Nothing in between is acceptable. Every one ready? Okay, checklist.

Jeff pressed the number one starter again. Ah, there it comes, just as advertised. The button popped at 62 percent and the engine accelerated to 100 percent. No sweat.

I reached for the scroll checklist. Suddenly, an explosion rocked the aircraft. The airplane twisted upward and felt as if it were leaving the ground. What the — Jeff threw me a questioning glance. Before I could even think, a second violent blast sent me straining against my shoulder harness.

"We're on fire. The left wing is burning." The loadmaster was frantic. Only then did I realize what was happening.

"Get out!" I heard myself repeat it twice. Jeff was climbing over the seat. "King 19. I'm on fire. Leghorn taxiway," I blurted out. I jerked the fire emergency control handles, feathering number one and discharging the fire bottle while reaching for the number two handle. I couldn't see the fire from where I was sitting. I wondered what it looked like.

Both fire lights went out. Smitty, who had remained on board in spite of my order, sat clutching the other three condition levers.

"Pull 'em, cut the power and let's get the hell out," I shouted. Rising from the cockpit, I glanced out the window and saw fire trucks converging on our spot. Beautiful. Smitty had beaten me to the crew entrance door and the foot race was on. I wondered whether the load of carvings and beer had been taken out of the cargo compartment. What a thought at a time like this.

Once clear, I stopped and looked back. A young airman was emptying a CB extinguisher on the wing. Fuel gushed from the holes in the left external fuel tank but it wasn't on fire. Brave kid, I thought. Then the fire department's hoses began spewing foam. The emergency was over.

Ye gads, it occurred to me, what if it had happened in the air. My stomach began to churn and suddenly I was throwing up in the grass. I had heard of people doing that after emotional experiences. Now I knew why.

No one was hurt. For that I am thankful. We were lucky in so many ways. The fuel from the tank, miraculously, didn't ignite. And no one was injured fighting the fire. Luckily.

But I sometimes wonder if we don't make much of our own luck. A good fire department isn't luck. A crew's reaction, based on intensive training, isn't luck.

Yes, I learned several things from the incident, including the quick fix, ball peen hammer trick that someone used to fix the starter valve. The starter control valve had stuck open, and that's what got the emergency going. I also learned that once you declare an emergency, the fire department at Clark responds on cue. And, yes, I learned the reaction characteristics of this particular flight crew.

But the one thing that has stuck with me longest concerns my own mental attitude. Never again will I crawl into a cockpit thinking about the good time I had the night before — or an hour before. Thoughts like that can cost more than they're worth.

On second thought, perhaps I was lucky that day at Clark.

Without prompt corrective action, the pilot's old Nemesis can become a crucial element on a routine mission.

How to approach the high bounce problem

In our training days we learned how to recover from the run-of-the-mill bounced landing. We all became intimately familiar with the balloon, the porpoise, and the old-fashioned jaw-jarring hard landing. Generally speaking, the rule was to keep the wings level and avoid an exaggerated angle of attack while checking the sink rate for the second (gulp!) ground contact. (See figure 1.) We were warned that pushing forward on the stick after a bounce would make the second contact on the nose wheel and set off a porpoising maneuver that was as hard on the instructor's nervous system as it was on the aircraft! Once we mastered this phase of the art, bounced landings caused little trouble.

High bounces, however, had led to critical recovery situations and, in some instances, to serious aircraft damage. These high bounces usually result from attempts to reduce a high sink rate just before landing. (See figure 2.) Sometimes the aircraft is rotated sharply, driving the main gear into the runway and bouncing it 25 to 50 feet into the air in a nose-high attitude. In other cases, an abrupt rotation achieves a zero sink rate inches above the runway, but with the aircraft at a high angle of attack. Without hitting the ground it balloons and ends up like the first aircraft — 25 to 50 feet high and at an exaggerated angle of attack.

We've all bounced a few in our routine MAC operations, particularly during our piston days. Corrective action was, and is, to advance throttles, increase wing lift by propeller blast, and use all the angle of attack available to bring the sink rate into tolerances for landing.

In today's jet operations, we've found corrective actions are much the same; however, swept wing aircraft are particularly vulnerable to excessive nose high flares, allowance for turbine spin-up must be made if you are not flying a power on approach, and runway length is more critical. The absence of prop blast to create lift also means you must diagnose the situation much quicker and take corrective action at once. Unless you bounce or balloon at high speed (which may explain why you bounced in the first place), you should add power as soon as you come off the ground or start to balloon. Then as you pick up speed you'll have that power available, either for a go-around or for maintaining control over the second touchdown.

Obviously, the tricky part of the maneuver is avoiding asymmetrical thrust. With reasonable throttle rigging and prompt recognition at the beginning of the difficulty, the jet — like its predecessor propeller aircraft — can be flown out of high bounce situations, and you can safely accomplish a second landing. Also obvious is that this technique can use up prodigious amounts of macadam, particularly when performed properly. It is important to avoid the two corrective extremes: (1) Overrotating the aircraft to hold lift and check sink rate thereby compromising tail clearance, and (2) pushing the nose over too far, diving the aircraft into the ground. (See figure 3.)

Summary

Stay away from high bounce landings and ballooning by flying your approach on the numbers. Maintain the correct approach speed and slow to the threshold speed early enough on final to establish proper power and the desired landing attitude. These items are most important and will go a long way in preventing a bounce or a balloon. Good landings require a good final. Too low and too slow and you may end up on the back side of the power curve or put it in the dirt short of the runway. Too fast and high and you're asking to balloon, bounce, burn up your brakes or end up in the boonies.

If you find yourself back in the air, action is vital to avoid loss of elevator control — and the resultant pitch-down onto the runway.

Recognize a deteriorating situation promptly. Make necessary throttle adjustments in the entering stage of the bounce or balloon. Keep the aircraft flying and either go around if on a short runway, or make a power-controlled second touchdown, avoiding exaggerated nose-up or nose-down attitudes throughout the maneuver. If in doubt about salvaging the landing or your pride, **go around!**

(Adapted from FLIGHT SAFETY FOCUS)

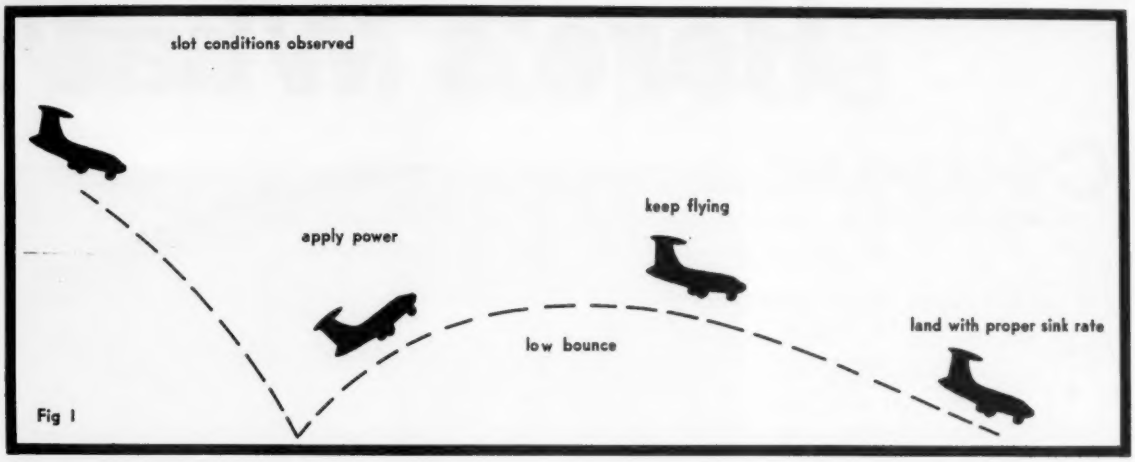
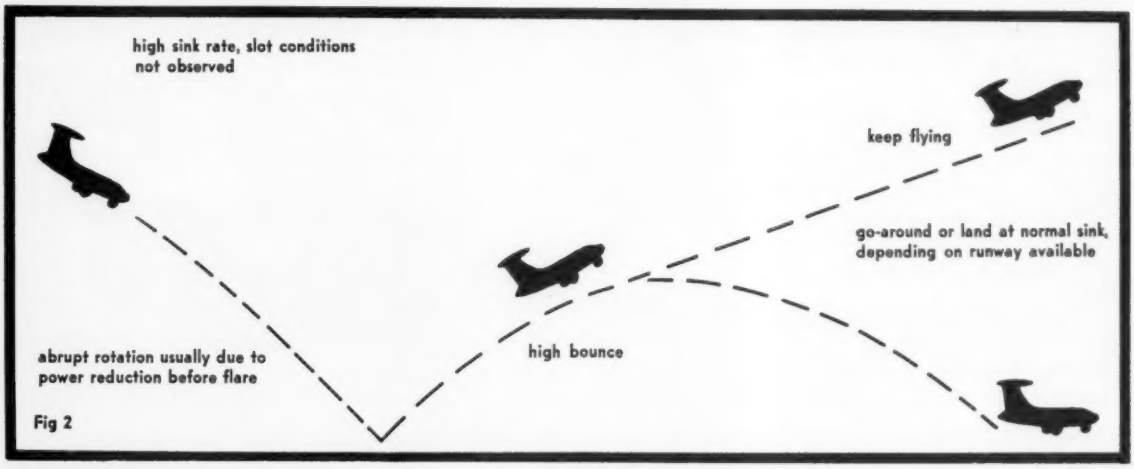


Fig 1


high sink rate, slot conditions not observed
keep flying
go-around or land at normal sink, depending on runway available
high bounce
abrupt rotation usually due to power reduction before flare
Fig 2

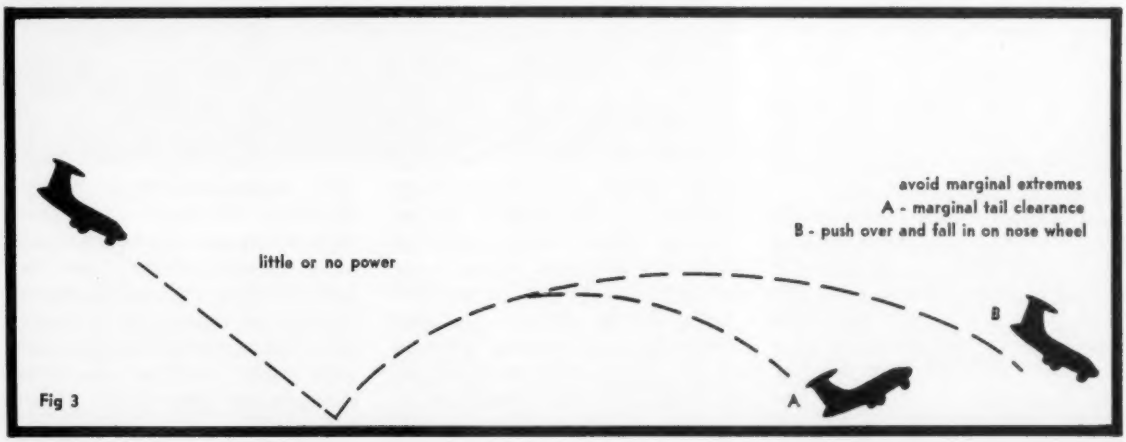


Fig 3

Here's What's

by Maj Bob Gar

Crews of Aerospace Rescue and Recovery Service are already stepping into a new helicopter which, from all indications, will be a more effective and versatile rescue vehicle than the venerable old bird it is replacing.

This shiny new helicopter, the HH-1H, is operational and joins its recently acquired sister ship, the UH-1N, in a modernization process which will eventually replace the renowned HH-43 Pedro as Rescue's front line light helicopter.

Pilots who have transitioned into the Huey indicate their approval. Its power, speed, smooth handling qualities, improved navigational and weather capability, are just a few of the favorable aspects cited by its new pilots.

The HH-1H is a new model of the proven H-1 (Huey) series, modified specifically for the rescue mission. Power is supplied by a single Lycoming T-53-L-13B gas turbine engine generating 1,400 shaft horsepower. The engine has demonstrated its reliability over several years of rigorous Army service and propels the "H" at a top speed of 120 knots, some 13 percent faster than the HH-43, which is a significant factor on lifesaving missions.

Although higher powered, the HH-1H will prove challenging to the pilots flying it. Many of the chopper jocks transitioning into the Huey are finding the flight performance characteristics considerably different from the HH-43 in several crucial areas. The Huey, with a two-bladed, single rotor system, has higher blade loading and this accounts for decreased hover performance at high altitudes and heavy gross weights. It also has forward airspeed limits (Vne — velocity never exceed) imposed because of the single rotor susceptibility to blade stall and associated vibration. As with most other single rotor helicopters, hover control requires significant antitorque control inputs. Directional and hover control margins can become critical with combinations of high altitudes, hot temperatures, heavy gross weights, adverse wind conditions, and other than neutral lateral and longitudinal CGs.

s New in Rescue

Maj Bob Gardner

From a pilot's standpoint, the Huey has good autorotation characteristics. However, its higher autorotation airspeed, more abrupt recovery procedures, and directional control compensations are characteristics quite unlike those of the HH-43. The Huey's higher disc loading results in greater descent rates and reduced collective pitch response during autorotation, particularly at high gross weights and/or high density altitudes.

Probably the most significant advantage of the HH-1H is its diversity of avionics equipment. The Huey "H" is equipped with a wide range of navigation and communication gear, enabling pilots to more effectively accomplish humanitarian missions during night and adverse weather conditions. For the first time, ARRS' light helicopters will be equipped with VOR, TACAN, ADF, DME, ILS, UHF-DF, and IFF/SIF navigation equipment. This wide spectrum of new equipment provides increased communication compatibility with other search aircraft along with an expanded IFR rescue capability. The capability of searching for and locating survivors will be greatly enhanced by the improvement in communications and point-to-point navigation.

In addition, the "H" model has two pieces of communication equipment specifically designed for its rescue function — a special VHF/FM radio set for direct communications with FM radio equipped ground vehicles and rescue teams and a loud speaker mounted beneath the aircraft so that instructions can be transmitted to the victim or a ground party. The FM set is a two channel unit allowing voice contact with Air Force emergency command and control vehicles on the base crash/disaster control net and direct communications with civilian law enforcement/civil defense vehicles equipped with compatible equipment. Air-to-air and air-to-ground communications are provided by UHF, VHF, and FM radios, thus permitting radio contact with all other aircraft and ground based search controllers assisting in the search.

Another improvement designed especially for Rescue includes

Here's What's New in Rescue

an externally mounted variable speed hydraulic rescue hoist with 250 feet of cable.

The HH-1H also has a considerable larger cabin than the HH-43, thus providing more usable room for passengers, cargo, or litters. It can accommodate up to 13 persons, including the pilot, or can easily be configured to transport six litters and a crew of three. The new Huey can also carry a 5,000 pound load with its external cargo hook and is specially configured with a forest

Avionics Check.

penetrator and crash access and medical kits.

Another significant feature of the HH-1H is its crashworthy fuel system. This is the first and only Air Force helicopter procured with a fuel system designed to prevent post crash fires and thermal fatalities. The system consists of self-sealing, high-impact resistant fuel cells with strengthened fittings designed to withstand an impact rate of 65 feet per second (3,900 feet per minute), which is about the upper limit of human survivability. Since the U. S. Army installed the crashworthy fuel system in its Huey helicopters in 1971, deaths and injuries due to post

New Kind of Hoist.

crash fires have been significantly reduced.

In the logistic support area, the HH-1H will reap savings in both time and funds because many parts are interchangeable with the UH-1F and UH-1N, already in the Air Force inventory. Also, a lower maintenance man-hour per flying hour requirement is anticipated on the "H" model. Another major advantage will be the relative ease of cross-training maintenance personnel and pilots from one Huey model to another. This transition will be more expeditious and less costly than retraining personnel into a completely different aircraft.

In today's cost conscious Air

Checking a New Cable.

Force, a new item of military hardware must offer more than a pretty silver paint job and the basic capabilities to perform its mission. It must be safe, economical, and efficient to operate and maintain. The HH-1H promises to meet these objectives.

So whether you fly the HH-1H, maintain it, or are a potential rescuee, Air Rescue's newest helicopter stands ready to effectively fulfill its life saving mission.

Here's an example of how to overdo the crew concept.

The Super Silent Flying Team

When my neighbors complain about my son being such a big loud mouth, I tell them, "It's all right. One of these days he's going to be an Air Force pilot, and as a pilot, he's expected to be a loud mouth." (That's what I tell them. Actually, if he ever shows up as an Air Force pilot, he'll be loudmouthing for another reason and my size thirteen flying boot will be the proximate cause.)

Anyway, I have loved noises ever since the year AD (after the disaster). However, during those BC (before the crash) years, I was known as Gentle Jimmie, flying the left seat with Soft Talking Sam, and we were called the "Super Silent Flying Team." Both of us were ten-year captains, IPs, flight exasperators, and aircraft commanders par excellent. Those who observed us in the cockpit witnessed a beautiful ballet of precision maneuverings, minute adjustments, and perfect coordination . . . all without a single word being spoken. It was truly magnificent. He read the space between my ears and I read the void between his. We were like two pantomimists, working quietly as a team, unhampered by a lot of yakkety-yak and Dash One responses to checklists. We knew exactly what to do and we did it . . . on cue. Talk was superfluous. Using a checklist was criminal. The Elites of the Ozone were at the helm.

When I smiled, Sam raised the gear; a nod and the power was reduced; a shrug and the flaps came up. No chit-chat . . . like a well-oiled machine with everything done beautifully and silently . . . until that day.

That day involved a routine eight-hour flight of the customary nods and smiles and four cigars. The Silent Ones were on stage and the audience was spellbound. Even the snow outside was quiet. Only those noisy engines ruined the astral serenity. Approaching the initial approach fix, we received the weather: two hundred and a half.

I smiled and Sam dropped the gear silently. The cockpit was quieter than the chapel on payday. On entering the glide slope, Sam silently advanced the power and lit another cigar. Then GCA said, "You're passing through minimums." I smiled.

Just as I expected, Sam gently tapped my hand, advanced the power, and silently took the yoke, meaning the field was not in sight. Perfect coordination. I nodded and looked up just as the field came in sight, so I gently tapped Sam's hand, cut the power, and quietly took the yoke back again, meaning I had it. However, before I could level off, Sam quietly tapped my hand, advanced the power, and silently retook the yoke, meaning we were in a fog bank and he was going around. I smiled understandingly, but at that instant I saw the runway again and as you might expect from such professionals, I gently tapped Sam's hand, retook the yoke, cut the power and landed.

Now that I look back, this precise interplay of shifting responsibility, taking and retaking the yoke, all without a word being said, was marvelous. It was a degree of coordination that even a Notre Dame backfield would be proud of.

Unfortunately, however, Sam raised the gear on the first attempted go-around and the gear was still in that very silent UP position when the belly of the bird started scraping on the runway noisily.

At that point I broke the silence and asked Sam what happened, but Sam didn't answer. He was busy filling out the Form 781 and his application for retirement. Meanwhile, the scraping noise was music compared to the racket the wing commander was making as he jumped up and down like a maniac cn the corrugated L-shaped wing.

I do feel, now that it is all over, that Sam should have broken his silence at my FEB, but he didn't. I also feel that the verdict, "Grounded until death do us part," is legally insufficient and I shall appeal all the way up to the UN. Meanwhile, my son can yell all he wants to and if I ever see him without a checklist in his hand, reading each item one by one, even if he's riding his scooter, I shall kick him all the way from the top of his Exterior Inspection to the bottom of his Before Leaving the Aircraft and he won't be able to sit on his Post Flight for a week. Yell, boy, yell.

C. R.'s self-taught history lesson halts abruptly when the Master Manipulator comes down with the Huey-Pedro Syndrome . . . . . .

The world's greatest autorotator smoothed down his hair to protect a reflecting skull from the hot sun as he and Long Suffering Sam sauntered across the flight line to the awaiting helicopter.

"Well, Sam, m'boy," C. R. mused, "never thought I'd stay in helicopters this long. Yes, sir, these little toys are not too bad, not at all. Can't think why I hated them to begin with."

"Yessir," replied Sam, "range, endurance, performance, payload —and speed. All much better than old Pedro, I must say."

"And don't forget, no fire suppression kit to fuss with," reminded the Avoirdupois Aviator.

"There's just one thing that I've been wondering about for the past few minutes, though," Sam said apologetically.

"And what's that, m'young tyro? The world's premier Pedro driver is awaiting in anxious autorotation to deliver the payload to any quizzical endeavor concerning this Huey bird."

Sam cringed at the Verbose One's mixed metaphors.

"Are you sure this flight is completely legal; neither of us is officially checked out in the aircraft?"

"Silly boy. If this flight was any more legal we'd have to get the JAG himself out here preflighting for us. I've got all kinds of time in this wop-wop. Not to mention my unequaled stint in old Pedro itself. If you can fly one, you can fly 'em all, I always say."

"And what did your instructor say?" jabbed Sam.

"He said I was unbelievable," maintained the Rotund Rotor Head. "Besides, my check ride was almost completed yesterday. Only a formality, m'lad. Been through it a thousand times. Your worrying is exceeded only by your excellent choice of aircraft commanders," C. R. chided. "Throw an eyeball upon the exterior of this love bird while I strap my trim young bod into the right seat."

Within minutes the Dubious Duo were vibrating in unison and requesting takeoff clearance.

"Sir, our call sign is not Pedro Two. It's Beefeater Two," reminded Sam.

"Beefeater, Schmeefeater. It's all the same. We're the only helicopter with rotors turning. Tower knows who we are, young fella. Off we go."

Up they went, sparks flying from the left skid as they took off sideways. At 20 feet in the air and rising fast, C. R. began jerking the collective up and down like a water pump, finally settling the chopper down to a precarious ten-foot hover.

Sam was holding on the sides of his seat with both hands when the tower requested their intentions.

"We're taking off as cleared," the Great One blurted as he zoomed past the control tower in the wrong direction, quickly turning back and passing it for a second time.

"Roger," replied a quivering voice from the control tower.

Sam opened his eyes as the copter leveled off at 300 feet after just missing some trees about a mile from the field boundary. "How do you like them apples, Sammy boy; they don't call me the Ace of the Airways for nothing. Wow, how great it is to be alive."

I wonder if we'll be around to say that tomorrow, thought Sad Sam, his fears beginning to return with C. R.'s renewed confidence. C. R. maneuvered the helicopter through some steep turns, a few chandelles he had learned in the T-6, and several other strange maneuvers that Sam wasn't sure had ever been in the book.

"Oh, I have slipped the surly bonds of earth, away from all those nonflying jerks . . .," bellowed the Master Manipulator over the interphone.

Sam wondered if C. R. was suffering from hypoxia. Surely, not at 300 feet, he told himself.

"Sir, don't you think you should clear yourself to the right before making turns in that direction. We were briefed the other day that a lot of light aircraft were supposed to be in the area for the next few days."

"Clear right!" screamed C. R. as a light aircraft shot by at 100 feet above the helicopter. "Sun was in my eyes that time. Anyhow, those light planes aren't supposed to be flying at this altitude," he gulped.

The World's Greatest Aviator finally settled down to straight and level flight, whipped out his ebony cigarette holder and lit up, holding the cyclic alternately with his chubby knees and right hand.

"I'll take the controls if you'd like," said Sam, his hands already clutched tightly around the cyclic and collective. The Able Aeronaut acquiesced and in a few seconds Sam had control. "Where to now?" the young copilot asked between gasps as C. R.'s gold-ring Egyptian Oval filled the cockpit with blue-white smoke.

"Today, my son," came back C. R., his beady eyes squinting through the haze, "we are going castle hunting. There are numerous historical sites of significant interest just over that mountain and we are about to see one of the most renowned."

Sam marvelled. C. R. a history buff? He couldn't believe it. In all of his experience with the Rotund One, never had C. R. expressed a penchant for anything remotely akin to higher learning.

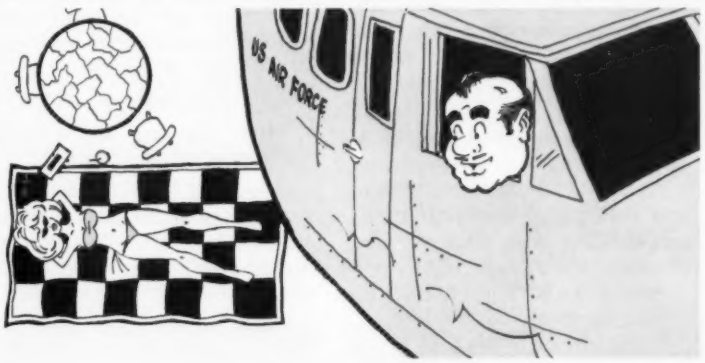
"Take up a heading of 350 degrees, m'boy, and you shall feast your orbs on one or more of the wonders of the world." By now C. R.'s eyes were gleaming as he flashed a rakish grin.

Sam didn't know what to make of it, but took up the heading. "I believe, sir, that we're about to go into a restricted area. According to this map . . ."

"There it is," cried C. R. "I've got the helicopter. Hang on."

Down they went, in as near a Split-S as Sam ever hoped to see in a Huey. Much to his astonishment, as the chopper skimmed along at 50 feet, an old castle loomed up in front of them. Once over the castle, Sam got the message loud and clear. A lake on the castle grounds was ringed with bikini-clad girls, all tourists from nearby cities.

"Now, there's some of the world's greatest wonders . . . look at that one — no top at . . ."



"If you don't watch out, we're not going to have any top at all either," cautioned Sam, his eyes alternating between the stuffed bikinis and the blurred castle spires as the chopper spiraled to the right in continuous 360s.

The girls waved gingerly, some of them shouting and jumping up and down. C. R. waved back. Some of the men on the ground looked as if they were shaking their fists. C. R. waved at them, too. By this time, Sam's eyes were getting tired of switching from bikinis to castle tops. He glanced at the airspeed indicator which was steady between 20 and 50 knots.

"Look out!" he shouted as he looked back out the window. "We're in the moat."

C. R. was still smiling and waving as the Huey passed under the drawbridge. Fortunately, Sam had the controls and was holding the bird on a steady course. As the chopper exited the other side of the bridge, Sam could see tourists above him on the bank, some struggling to keep their picnic dinners from flying away and others scurrying to safety. This time, C. R. held on as Sam pulled in the power and the Huey shot skyward. Within seconds the Dubious Duo were level again at 300 feet.

"I have the machine, m'boy, now that you've had your turn," croaked C. R., now smiling a kind of sickly smile.

Sam's face was white. He started to speak, but was cut off.

"Reminds me of the time in the old T-6 when I flew under the Golden Gate Bridge," offered the Master Manipulator of Wires, Tires and Words, "Much more exciting than that last little maneuver that I just let you perform. But, mind you, don't cut it too close."

Sam decided to forget it all and pretend it was a bad dream. He decided his imagination was beginning to play tricks on him. Something seemed to be flapping from the top of the helicopter, but by now Sam was so badly shaken he didn't trust his own eyes. Anyway, C. R., turning back toward home plate, had burst into song.

* * *

Back at the base, the Awesome Autorotator decided to try one of his specialties.

"Sit back, m'lad, read the checklist to yourself and watch how old Pedro pilots handle these easy-to-fly Hueys in autorotation."

C. R. throttled back, started his autorotation to the runway at 55 knots and whistled a snappy tune. He began an excellent HH-43 flare. "Watch this smooth touchdown and learn what it's all about," C. R. advised his copilot.

"But, sir, are we supposed to . . ."

The Huey banged down on the runway and tipped forward. Sparks flew from the skids and the tips of the rotor blades as the chopper almost went over on its nose. It slammed back down, upright, its rotor beating pitifully in its new configuration.

The Great One and Sam looked at each other. Fire trucks swarmed around them and as they stepped out of their chopper the wall of fire trucks was broken by a car with an eagle on the front plate.

C. R. walked over and peered sheepishly into the automobile, feebly saluting the stern looking colonel.

"Terror," the colonel began softly, "what's your excuse? It had better be good because I'm going to have to repeat it verbatim to a four-star general."

"Actually, sir," I was demonstrating an . . ."

"I knew it! I knew it!" The colonel's voice became louder and louder. "You're not an instructor. You're not even a legal aircraft commander. What's more you were reported flying over a restricted area. You'll never fly another airplane in this wing. What do you say to that, Major Terror?"

C. R. gulped. He looked at Sam and Sam looked at the ground. The staff car roared off.

"Sir, I tried to tell you," Sam sympathized.

"Don't worry, m'lad, we shall manage somehow to overcome minor obstacles such as these," The Great One pledged, his courage building once again. "Meanwhile, retrieve that red tablecloth from the rotor system and in no time we shall return it from whence it came."

Lament For Pedro

As an ex-Pedro driver I noted with some sadness the "cutback" which removed local base rescue from the rolls here at Sheppard. Many friends and comrades had passed through the detachment here, and I had always felt welcome to stop in for a cup of coffee and a chat. The FE that gave me the last check ride before I pinned wings on was the commander for a while.

With no fanfare, not even a note, Pedro faded out of the picture. Though unsung, the "Huskie" is not forgotten by those who cursed and loved the strange machine all the while they stood alert, bounced through the air, or answered questions like, "What keeps the blades from hitting each other?" Nor will the number of pilots who got a free Pedro ride out of some fairly hostile spots forget.

I submit a short lament to the passing of an old friend:

"Here's to Pedro, for just fading away in the best tradition of old soldiers. Fewer and fewer times was the whopping wooden-winged wonder seen dragging its burden of succor through the skies — fewer and fewer times.

"One day it was there; one day it was not. The windsock still flew by the circle on the ramp and shrouded fire bottles waited on trailers, never to fight again.

"The scavengers came and took desks, bulletin boards, and personnel. A desk went here, a medic back to the hospital, and a pilot retired, while his copilot went rated sup.

"Yesterday, an aging C-54 taxied through what had been the realm of the arrogant housefly of happiness, the animated palm tree, hero of many battles, sometimes saver of men. Its stiff, unflexing wing passed over the windsock by a scant margin. The windsock was declared a hazard to taxiing aircraft and the C-54 took off for a long rest at D.M.

"The windsock was not lowered. It was taken down. The sign outside the hangar is fading. The door is locked. Second lieutenants wonder what those circles on the ramp were used for.

"Adios, Pedro."

Michael T. Fagan, Capt, USAF
T-37 Flying Safety Officer
80th Flying Training Wg (ATC)
Sheppard AFB, Texas

Open Up

The March 1973 issue of THE MAC FLYER contained an article on page 30 entitled "Sealed Boxes — Bad News" in which the author describes an incident concerning a MAC aircraft endangered by a U. S. mail parcel containing dangerous material. The parcel was not opened for inspection because, as the author states, "USAF is not authorized to open U. S. Mail."

Military postal clerks assigned to USAF Postal and Courier Service and stationed at most overseas Air Force installations are authorized to open all second, third, and fourth class mail known to contain or suspected of containing contraband. Contraband is described by Postal and Courier Service Manual 182-3 as materials, goods, and articles which by law, regulation, or treaty stipulation are prohibited from being sent in the mail. This includes controlled substances and restricted items when the condition of the restriction has not been met.

Although the volume of mail transported by MAC would prohibit our inspection of every parcel, AF Postal and Courier Service clerks overseas will cooperate in opening and inspecting parcels suspected of containing dangerous material.

For assistance in inspecting suspect parcels, the MAC station traffic officer should be informed to contact the ranking Air Force postal officer at the installation APO or Postal Service Center when the problem arises. Explosive Ordnance Disposal (EOD) will be contacted when letter bombs and such devices are suspected. For assistance within CONUS, contact USPS.

Donald P. Huff, Lt Col, USAF
Chief, Transportation Division
HQ USAF Postal and Courier Service
Alexandria, Virginia

★ **The article should have read "The Aerial Port Logistics Office is not authorized to open U. S. mail" instead of "USAF is not authorized to open U.S. mail." Thanks for the correction and amplification.**

Lost Faith

I'd like to see a type of "Forum" regular feature in The MAC Flyer. I, and many others, have lost faith in the Hazard Reporting, Form 1000, and the 847 systems. So I think a "Forum" where crewmembers could relate in a short paragraph personal incidents, opinions, suggestions, etc., is needed.

We need a way to tell the others of those accidents that didn't happen. Two anecdotes are enclosed describing incidents in which I was involved (Ed note: to be published later). The 847 people didn't think they were important enough for inclusion in the TO, but I think they are of operational interest to other C-130 drivers, so I would like to have a place where I could present them. Also, here is a question I'd like answered:

Does anyone know why, in the HC-130 TO, section three (p.3-13), Propeller Emergencies, all references to the desired shutdown airspeeds are given as KTAS or true airspeed? Everyone here thinks it should be KIAS (indicated airspeed) or more correctly KCAS (calibrated airspeed). But the TO writers won't accept our 847s and won't give us a reason for using True AS. Can any aero engineers out there shed some light on the problem?

I've gone the local route and the 847 route without success, but maybe somewhere out in MAC someone has the answer. These are the type things I'd like to see included in a "Forum," and if you could set up something like this, I for one would be greatful. In fact, I'd even volunteer to edit it.

Capt William J. Crielly, Jr.
67 ARRSq

★ **We've tried the Forum idea at various times but it withered from lack of interest. We do have a "Guest Viewpoint" feature — care to contribute?**

Concerning the KTAS/KIAS item: any takers?

Global Notes

pedro leaves nation's capitol

Personal thank you notes from President Nixon and Vice President Agnew culminated the history of Det 6, 44 ARRS, at Andrews AFB. From the Kennedy era to the Nixon era thousands of Presidential helicopter and Air Force One sorties were launched and recovered under the watchful eye of the Andrews Pedros. Heads of state of most of the nations of the world were provided similar coverage. The unit was on immediate alert 24 hours a day from 1962 to 1973. Another page in the unique history of Rescue was ended as Pedro departed the skies of the nation's capitol.

air force awards

Flight Safety Plaques are awarded annually to Air Force organizations below major command level for meritorious achievement in flight safety. MAC winners for 1972 are:

89th Mil Alft Wg
375th Aeromed Alft Wg
41st Aerosp Resc & Recovy Sq

25,000 hours

CMSgt Herman E. Rudowske, Chief Engineer for the 437th Military Airlift Wing, completed 25,000 hours of accident-free military flying on 12 March 1973. He is only the second aircrew member in the Military Airlift Command to attain this record. An achievement of this magnitude could not have been realized without a complete mastery of the technical aspects of flight, the consistent exercise of sound judgment, and a deep personal pride in maintaining the highest standards of airmanship. For this noteworthy accomplishment, Sergeant Rudowske was presented the MAC Flight Safety Achievement Award.

He has flown in 27 aircraft from the PT 17 in the AAF to his present assignment in the C-141. In 28 years of active duty service, Sergeant Rudowske has piloted 19 aircraft and has been a flight engineer on the remaining eight. He has flown combat missions in C-46s and C-47s in Burma, C-121s in Korea where he was General MacArthur's flight engineer for a time, and C-130s in Vietnam in 1963, 1965, 1966, and 1967. He was instrumental in setting up a C-121 Flight Engineer Ground School and Flying Training Course and the Flight Engineer Upgrade and Refresher Courses for the C-124, C-121C, and C-130E.

In surpassing this significant milestone in military aviation, Sergeant Rudowske has set a goal of excellence and professionalism for the entire United States Air Force. THE MAC FLYER is proud to say congratulations, Sergeant Rudowske, for a well-earned award.

Here's a tip on radar trouble shooting. It's for Starlifter pilots who left their navigators at home.

Euphoria—Eureka, You're In It!

by Maj Orlen L. Brownfield
Aircrew Standardization
63d Military Airlift Wing
Norton AFB, CA

SUBJECT: USAF AIRCRAFT INCIDENT MESSAGE REPORT

ITEM 7: AIRCRAFT WAS LEVEL AT 8,000 FEET, IFR, IN LIGHT HAIL AND RAIN UNDER RADAR VECTORS FROM CENTER. A LOUD BANG ACCOMPANIED BY A LIGHTNING FLASH IN THE VICINITY OF THE LEFT SIDE OF THE RADOME WAS EXPERIENCED. APPROXIMATELY FIVE MINUTES LATER, A SECOND LESSER FLASH AND THUMP WERE FELT AND APPARENTLY DID NO DAMAGE. THE RADAR WAS OPERATING AT THE TIME AND HAD BEEN CAREFULLY TUNED AND ADJUSTED PRIOR TO ENTERING IFR CONDITIONS. NO RADAR RETURNS WERE EVIDENT PRIOR TO OR AFTER THE STRIKE TO SUGGEST CIRCUMNAVIGATION. AIRCRAFT LANDED WITH NO FURTHER PROBLEMS. RADOME DAMAGE WAS DISCOVERED ON BLOCK IN.

Dear Pilot,

It happened again. This isn't the first time that you have unknowingly flown your giant swept-wing shadow into the outstretched arms of a thunderstorm. Another incident report. They seem to crop up with a certain amount of regularity. Some of you are not so lucky . . . Example: ITEM 5: SEVERE HAIL DAMAGE TO WING LEADING EDGE AND RADOME ("but, there were no targets on the scope") or ITEM 10: LOADMASTER SUSTAINED SEVERE BACK INJURY DUE TO UNUSUAL AIRCRAFT ATTITUDE AND G-FORCES ("I tuned the set carefully and saw no . . ."). Oh yes, you thought the old APN-59 was doing its job. The presentation was there; good sweep, range marks and heading marker, but no weather returns. You even tried ISO-ECHO.

This is where the euphoria comes. You **think** your radar is working and, under instrument con-

Euphoria — Eureka, You're In It!

ditions, you **think** you must be in a stratus layer. If you had had any doubts about your aircraft's internal surveillance equipment, you would have advised center and requested some help.

Some of my less sagacious brothers of the wind (navigators) find themselves in this position, but it is rare, as we are trained to profundity in the operation of electrical doo-dads and speak esoterically of sector scan, magnetron, pencil beam, coriolis and "Twenty minute warning" (You all remember that one?).

Well, the fact is, despite all outward appearances, your radar is not working and in this state of euphoria you could fly your "star of wonder" into a Nympho cumulus that might alter, severely, the superstructure and substructure of your aircraft and — your body.

Friend Pilot, I don't care what my brothers of the wind say about you, you're all right, in spite of those ego centered navigator jokes you tell (some of which would humble even Don Rickles); all that aside and being basically a humanist, I'll try to give you the short course on the APN-59. It might save your life. Don't worry, I'll keep it simple. It won't make you an expert, but for those times when you have to go it alone (e.g. stateside, locals, etc.) you'll be a little more comfortable twisting the knobs on the navigator's radar panel.

Without being too technically inclined even the most pensive pilot can keep his wits long enough to turn the radar on — function switch to Search, Scan: Right or PPI, Test switch to Line and then to Mag once a reading (approximately .6) is obtained. In slightly over three minutes you're in business. You now have the "omnivision" of a navigator; able to survey the land (or sky) in nearly every quadrant for a distance of 240 nautical miles (that's 275 Jim Ryan miles).

About five thousand feet down the active, your graceful Starlifter arches her back, lifts her face to the sky, and in ten minutes she is painting the sky with silver contrails as you head for Robins, navigatorless.

You know there will be thunderstorms en route. So your extra engineer (everybody needs two) has selected 240/30 on the range, "pencil" beam and about three degrees down on the tilt.

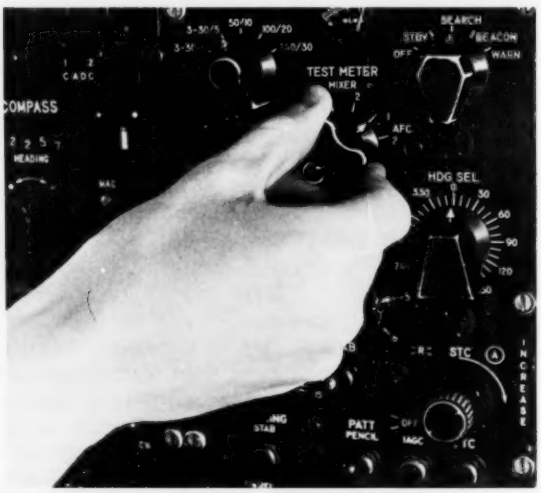
Later on, in darkness, Orion, Capella and Sirius disappear in the cirrus above you and flashes of "heat" lightning appear on the horizon. You assign the extra pilot (everybody needs three) to operate the radar. The youngster is switching ranges and functions and even using ISO-ECHO, impressing the entire crew with his adroit manipulations of this sophisticated surveillance system.

As you get into the thick of it, on instruments now, you hear an Eastern at FL 330 request deviation south for weather. Approved. But he's about fifty miles ahead of you, same airway, and you're painting no target!

Hold everything! Stop the simulator. What was the nav in THE MAC FLYER saying about this situation. Symptoms: Good sweep, range and heading marks, good mag voltage, no targets. Yep, that's it. Euphoria. Eureka!

Your radar is not working. You know how to tell? Back at the radar panel your test is in the Mag position, reading .6 and steady. In the Mag position you are observing the transmitted signals. Realizing that radar is a giving and getting affair, you not only have to transmit but you must receive.

How to find out if you're receiving: Manipulate your test switch to one of the crystal positions; ie., AFC 1 or 2, or Mixer 1 or 2. If your set was functioning properly, the reading would be steady, about



Check the MIXER and AFC currents for proper receiver operation.

mid scale. But yours is not. The needle is oscillating from 0 to .6 or so. Why? Because your R-T unit is searching for a signal and if found would indicate a cumulo-nimbus at 12 o'clock, 20 miles. Not much time is there?

At least you know your radar is on the blink. Advise the center controller. He can give you a little help. Don't expect too much; his scope paints airplanes "good-to-excellent," but weather returns are "fair-to-poor."

Is there any inflight manipulation that can correct your dubious situation? Perhaps. Try this: Without changing ranges, go from Search to Beacon and return to Search, always monitoring a crystal current (again Mixer 1, 2 or AFC 1, 2). The needle should stabilize around mid-scale and there they are: Targets appear on the scope all around you. Lucky you.

Switch to BEACON could cause lock-on.

Why does this happen? Well, I spent two hours in a discussion with our radar folks here at Norton AFB and they're sharp. Some of the words they used were almost even beyond the understanding of a good navigator, so I'll omit the superfluous technicals.

The range selector switch (where you select 30, 50, 100, or 240 mile range) operates a ratchet type switch in the R-T unit. The master function switch (Off, Stby, Search, Beacon, Warn) operates this very same switch in the R-T. As you change ranges, the ratchet switch (in the R-T) moves only a little, one click per range shift except for between 100-240 mile shift (in this case there is no movement). Going from Search to Beacon rotates the switch to extremes and presumably causes better contact when returned to the Search function.

Much of this is speculation and is not found in tech orders, but it works — sometimes. If your set has a bad local oscillator, nothing short of a new unit will get your picture back. But, always give this a try. It could save you a fright, some embarrassment, or your family some tears.

Sincerely,
Navigator

P.S. In case you're still confused maybe this little checklist will help:

- Set test meter switch to crystal current (not Mag or Line, as these do not indicate receiving).
- If you are on instruments and have no targets displayed, visually check the test meter for fluctuating current.
- If there is fluctuation, your radar is not receiving, so:
  1. Position function switch to Beacon and wait for Test needle to stabilize. (This should occur in no more than 30 seconds.)
  2. Then return to Search; current should stabilize and presto! You are in business.
- Each time you change ranges, it may be necessary to perform this ritual. Your crystal current will tell you when.

(Photos by Maj Charles Rainey)

Sharp Eyes

During takeoff roll, the pilot occupying the Starlifter's jump seat noticed the pitch trim indicator passing through six degrees nose up. He called for an abort, and as the big transport decelerated, the pitch trim indicator went to full nose up. But a check of the stabilizer revealed that it had not moved to a corresponding position. After taxiing back to the blocks, the crew discovered that the hydraulic pitch trim control and position indicator circuit breaker had popped. Maintenance personnel located the problem — contacts one and three of the stabilizer 12.5 degree limit switch were grounded out. The resulting short circuit popped the circuit breaker when the flaps were in the down position, causing erratic pitch trim indications.

In this case the problem turned out to be an inoperative limit switch which caused improper trim indications. In another instance it could be an actual runaway trim. An alert crewmember in the jump seat is a valuable asset.

Serious Cirrus

It doesn't take a meteorological wizard to anticipate lightning in an area of towering cumulus or threatening black clouds.

But meteorological conditions don't always have to be that way to trigger a lightning strike on your airplane.

In a somewhat unusual incident, a T-39 had taken off into an area which, according to the weather forecast, was free of any buildups. Ground radar also reported no indication of adverse weather. The Sabreliner was cruising at FL 310 in cirrus clouds and light rain when a loud bang resounded. Unsure as to whether the noise was caused by discharging static electricity or lightning, the pilot decided, nevertheless, to climb out of the clouds. He leveled at FL 350, still in light rain. A few minutes later, in quick succession, three or four lightning bolts struck the aircraft, damaging the radome.

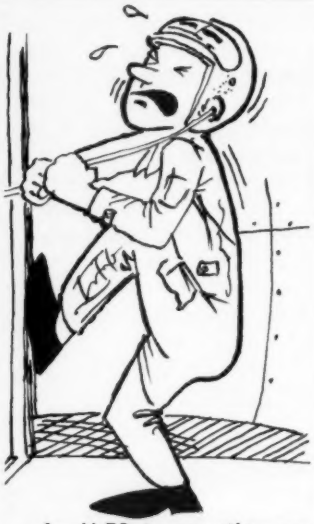
Although no serious damage was inflicted, this incident shows that regardless how optimistic the forecast, when you're in clouds there's always a possibility that awesome weather is nearby.

A fine tuned radar and constant radio monitoring for weather reports is the best way to stay one jump ahead of lightning.

No Knots

When flying an aircraft, an indication of speed is a pretty vital commodity; no pilot should be without it. Yet, recently a jet pilot found himself desperately short of knots simply because he had forgotten to remove the pitot tube cover prior to takeoff. Inadequate preflight checks can prove embarrassing in addition to creating hazardous conditions. It just goes to show that airmanship starts at ground level.

Caught Cord



An H-53 transporting an external cargo load had just reached an altitude of 150 feet and airspeed of 50 knots when the flight mechanic unbuckled his seat belt to leave the jump seat. Unaware that his intercom control cord had caught on the cargo hook mechanical release handle, he stood up and the load released.

This unusual mishap reinforces one of the primary axioms of aviation: overlooking even minor details can result in awesome consequences.

Regs and Checks

Do you ever question why crewmembers and maintenance personnel must comply with so many regulations and tech orders before they or their aircraft are turned loose for flight? Or the necessity for constant testing, evaluating, and inspecting? Is it all really necessary?

A look at the official findings in the aircraft crash that claimed the life of baseball star Roberto Clemente and four other persons illustrates graphically what could happen in the absence of these sometimes irritating safeguards.

The DC-7, taking off from an island airport, roared down the 10,000 foot runway past the 8,000 foot mark before finally lumbering into the air. Its climbout was extremely slow, according to witnesses, and the pilot radioed that he was "coming back around." Steadily losing altitude during its turn, the aircraft crashed into the ocean.

The National Transportation Safety Board cited inadequate maintenance and inspection, inadequate preflight preparation and planning, and supervisory deficiencies as factors in the accident.

Number two engine failed on takeoff, a fact that investigators attributed to a previous taxi accident. Number three engine could not produce full power due to excessive wear. The chartered aircraft was nearly 4,200 pounds over permissible takeoff gross weight at the time. The Board pointed out that the plane had not flown for approximately four months and that flight readiness was maintained only by occasional engine runups.

One crewmember, the flight engineer, was unqualified and the copilot had only six hours of DC-7 flight time.

So, the next time you become irritated with what you consider overly stringent requirements, just remember why they're there.

Qs

Got It Made

A commercial four-engine jet liner crashed short of the runway, tearing off the landing gear and all four engines in a 2,600 foot slide. The pilot was executing a coupled ILS approach with weather reported as an indefinite ceiling of 200 feet, visibility one-half mile, light drizzle and fog, and runway visual range (RVR) variable from 4,500 to more than 6,000 feet. During its investigation, the accident board concluded that visual transition to the approach and runway lights could have been made at approximately 300 feet. However, in this case the pilot had disconnected the autopilot prior to decision height (DH) and never referred to his cockpit glide slope indications after going visual. Consequently, he failed to realize that he was too low on the flight path.

The basic fault here is the pilot's failure to monitor glide slope indications after going visual. Additionally, had the autopilot been engaged until minimum authorized altitude or had other crewmembers continued to monitor the flight instruments, this aircraft most likely would have reached the runway safely.

The lesson to be learned is to cross-check glide slope information after going visual and keep the bird on the glide path to touchdown.

Stick It in Your Ear

An Air Force captain on leave reported to the hospital emergency room complaining that he was unable to remove a wad of chewing gum from his right ear canal. How did he get gum in his ear? Believe it or not, the young captain had been on a flight and plugged a ball of freshly chewed gum into his ear to keep out the engine noise. An unusual remedy? Not for this young officer. He disclosed that he had frequently employed this noise-squelching method during his SEA tour and

had never experienced such difficulty before. The medical officer facetiously recommended that the captain choose another brand since this particular gum was the same color as the ear canal lining, making it difficult to locate and remove. While providing a somewhat humorous conversation topic, this type of noise suppression could have serious effects on one's noise detection senses. Although MAC crewmembers aren't likely to adopt such simple devices, good briefings could help prevent their passengers from embarking upon such foolhardy methods.

— Aerospace Medicine Report

after deadline . . . .

INVERSION ADVERSION -- The C-141 was lined up for a 0230L departure from a west coast base. The weather was clear and the stars were shining down on what appeared to be another "no sweat" departure. TRT was set at 1.92 and takeoff was normal. The gear settled in the wheel well and another on-time departure was in the bag. Sound routine? Almost! As the Starlifter passed through 800 feet, the EPR started to drop so the pilot advanced the throttles to maintain TRT. He was attempting to stabilize the EPR at 1.75 when the flight engineer reported that three of the engines were approaching 565°c EGT, approximately 10 degrees above the maximum allowed. The pilot turned the bird back toward home station and landed without further complications.

An investigation showed there had been no aircraft malfunction! The gremlin in this case turned out to be strong temperature inversion between 800 feet (11°c) and 3,500 feet MSL (28°c). The inversion was caused by warm, dry air accompanied by nighttime radiation cooling under clear skies. The condition is not a freak occurrence. During summer nights, this condition often exists at many coastal bases. However, during the day there is no inversion because of surface heating. But when the sun sets, the air at ground level begins to cool and the inversion reappears. The cycle is repeated daily throughout the summer season.

To keep your tail feathers from getting singed by an inversion, remember these symptoms the next time the weatherman mentions a strong inversion along your climb path. And when you push up those throttles be sure someone is watching those EGTs.

TIP-OF-THE-HAT -- Our thanks to Ms. Azalee M. Watson, photographer for HQ 2849th Air Base Group, Hill AFB, UT, for the photograph on this month's cover. It was only one of the excellent shots she provided for THE MAC FLYER editors to choose from.

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RESCUE
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AIR FORCE